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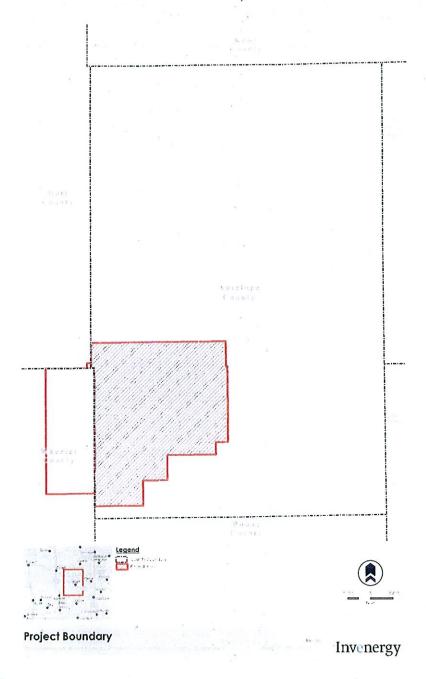
1.0 Executive Summary

#### 1.0 EXECUTIVE SUMMARY

On behalf of Thunderhead Wind Energy LLC ("Thunderhead" or "Applicant"), Invenergy Wind Development LLC ("Invenergy") is pleased to present this application for a Conditional Use Permit to the Antelope County, Nebraska ("Antelope County") Board of County Commissioners and Planning Commission, in accordance with the Antelope County, Nebraska Zoning Regulations as most recently amended on 3/13/2018 (the "Zoning Regulations"), for the purposes of approving a Wind Energy Conversion System ("WECS"), as defined in Section 8.08 of the Zoning Regulations. Such WECS are comprised of one or more wind turbines and accessory structures, including but not limited to transformers, substations, meteorological towers, electric lines, roads and other civil works, and an operations and maintenance building. The point of interconnection is proposed to be Nebraska Public Power District ("NPPD")'s Holt County Substation. An aboveground transmission line at 345kV voltage is planned to connect the project collector substation to the Holt County substation. As proposed, underground electric lines will be at 34.5kV voltage and will collect energy generated from the Wind Turbines (as described below) back to the collector substation. Approval is respectfully requested to construction, operation, maintain and decommission the WECS.

The Project area is generally located Northwest of Elgin, south of Clearwater, and west into Wheeler County. There are no towns or populations centers within the project area and existing use is very similar to other parts of the counties with a high percentage of pivot agriculture and cattle grazing — an excellent fit for wind farm development. Thunderhead is proposing 171 total turbine locations, 137 in Antelope and 34 in Wheeler County, with the point of interconnection at the future Holt County Substation in Holt County. The majority of the Project is proposed to be located in Antelope County and the subject of this application is only for the portion in Antelope County.

#### Thunderhead Project Area



Thunderhead hereby submits a completed Application Form for a Conditional Use Permit, in Section 2.0 (the "Application"), seeking a conditional use permit ("Wind CUP") for the Use in connection with a proposed Wind Energy Conversion System (the "Project,") as more completely described below. Thunderhead is also providing the enclosed information, exhibits and materials, which are hereby incorporated into and made part of the Application in compliance with Section 8.08.03 of the Zoning Regulations.

#### PROJECT SUMMARY

The Thunderhead Wind Project is a renewable energy generation facility of up to 300 megawatts (MW) of nameplate capacity located within a project boundary containing nearly seventy-five thousand acres in Antelope County; approximate forty-eight thousand of which is currently under lease agreement. The Project will include up to 137 Wind Turbines (as described below) sited within the boundaries shown on Figure 1 as the Project Area and Preliminary Layout attached as Exhibit C (the "Project Area"). The Project as a whole is expected to extend into Wheeler and Holt Counties; however, this application is limited to the portion of the project within Antelope County only. References to the Project Area in this Application refer to Antelope County only.

The Project will include: (i) wind turbines, including towers, hubs, nacelles, rotor blades, foundations and other associated equipment and structures (together, "Wind Turbines"); (ii) overhead and underground electrical distribution, collection, transmission and communications lines, electric transformers, an electric substation, telecommunications equipment, and other necessary interconnection facilities; (iii) roads, crane paths, and crane pads; (iv) meteorological towers and wind measurement equipment; (v) Operations and Maintenance buildings ("O&M"), control buildings, maintenance yards, parking areas, storage areas, and related facilities and equipment, (vi) energy storage facilities; and (vii) other ancillary facilities typically associated with WECS.

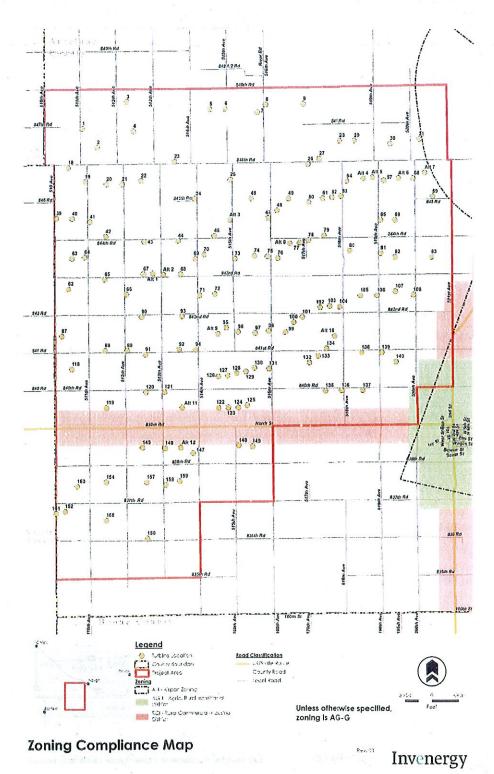
Attached as Exhibit B is (1) a list of landowners (collectively "Landowners") within the Project Area that have entered into agreements ("Land Leases") whereby the landowner grants and conveys to Thunderhead or its affiliate an easement and lease to convert, maintain and capture the flow of wind and wind resources over, across and through the surface estate of the real property which is the subject of the Land Lease (the "Leased Parcel"); and (2) a list of the Leased Parcels with respect to each current landowner. Thunderhead anticipates entering into additional Land Leases with new landowners within the Project Area as development continues.

Please see the following sections and exhibits that demonstrate compliance with the county zoning regulations requirements for a commercial WECS CUP.

All capitalized terms not defined herein shall have the definitions given in Section 8.08 of the Zoning Regulations, as applicable.

# 2.0 Conditional Use Permit Application

#### 2.0 CONDITIONAL USE PERMIT APPLICATION



Fee: \$ 10,000 Receipt #:				Permit #(	41/802
Receipt #:				Also See	<u> 149/802</u>
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APPLICANT Name: Thunderhead Wind Attn: Josh Framel	Energy LLC		Phone <u>: 3</u>	03-797-5490	
Address: One South Wacke City, State, Zip: Chicago, I		<u>0</u>	E-mail <u>:</u> j Cell Pho	framel@invener ne:	gyllc.com
LANDOWNER (If differen	ıt from Applicar	<u>nt):</u>			
Multiple - See section 3.7 c	of Conditional U	Jse Permit Appl	lication		
PROPERTY:					
	T24N R7W: T25N T25N T23N R8	T24N R8W: A SECTIONS 2- R7W: SECTIONS R8W: SECTIONS W: SECTIONS N R7W: SECTIONS	11, 14-23, ONS 26-35 ONS 25-36 S 1-22, 27-		
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<u>CONDITIONAL USE</u>: Application for a Commercial/Utility Grade Wind Energy System comprising one or more wind turbines and accessory structures, including but not limited to transformers, substations, meteorological towers, electric lines, roads and other civil works, and an operations and maintenance building.

Provide a site plan (a sketch, drawing, or aerial photo) which includes all of the following information (N/A if not applicable):

a. The size, location, and height of all existing and proposed buildings and distances from the nearest point of the building to the centerlines of any adjoining road or property line and the distance between buildings.

b. The types and locations of any easements affecting the property.

c. The location and type of water supply and sewage disposal facilities proposed to serve the building/addition proposed and distance between well and septic tank, and the leachfield or other sewage disposal system. Please have the septic installer sign the site plan showing their approval of the plans.

d. Location of any river, stream or intermittent stream within 300 feet of proposal.

e. The number and location of parking spaces for customers or the public.

The location of loading areas.

g. The type and location of refuse collection and storage facilities.

h. The location(s) of residential dwelling(s) and other non-agricultural land uses within two (2) miles of the property to be affected by the proposed conditional use.

i. List the location and distance to any existing confined livestock feeding operations within a 2 mile radius.

Location of disposal of dead animals.

k. An indication of proposed surface water drainage onto, through and off of the affected property. Include any areas of the property that are subject to flooding (attach Floodplain map) or considered to be wetland.

1. The type, size, and location of all signs associated with such proposed use

m. Any other helpful information including contractor information.

The notification area may be increased based on the application of use and the required distances as specified in the Antelope County Zoning Regulations.

Upon signing the application, the applicant will allow the Zoning Administrator, with or without others, the right to enter the property for the purpose of an inspection.

Applicant has two (2) years to finish. If after two (2) years construction has not started, this permit shall be made void.

Applicant's Signature:

Date: October 2, 2018

Date:10/02/18

See Memorandum of Lease Agreements

Signature of Landowner (if not applicant)

# Any incomplete permit will be returned to the applicant. Application must be returned to zoning office and fee paid before a public hearing is scheduled

This section to be completed by Zoning Administrator	
Date of Planning Commission Public Hearing	
Recommendations of Planning Commission: Attach Minutes.	
Date of County Board Public Hearing	
Action taken by County Board of Supervisors Attach Minutes.	
Notice of decision of County Board of Supervisors mailed to applicant on	
Zoning Administrators signature	Revised 9-18

Below are responses to the requirements listed on the application:

Provide a site plan (a sketch, drawing, or aerial photo) which includes all of the following information (N/A if not applicable):

a. The size, location, and height of all existing and proposed buildings and distances from the nearest point of the building to the centerlines of any adjoining road or property line and the distance between buildings.

Please see Exhibit A of this application that shows the preliminary layout of the project.

b. The types and locations of any easements affecting the property.

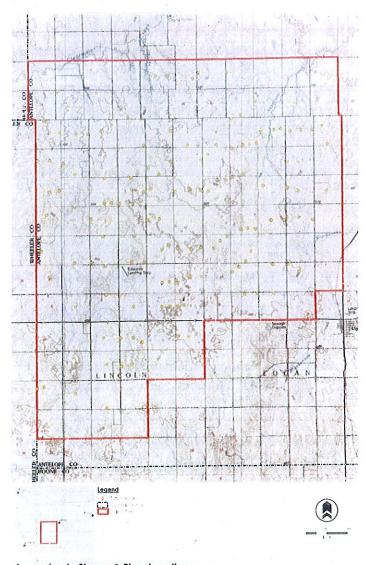
Easements will be identified during a detailed ALTA survey of the project, and any necessary crossings or non-disturbance agreements will be acquired prior to construction.

c. The location and type of water supply and sewage disposal facilities proposed to serve the building/addition proposed and distance between well and septic tank, and the leachfield or other sewage disposal system. Please have the septic installer sign the site plan showing their approval of the plans.

The O&M building will require water and sewage disposal facilities and details of the design and location of these facilities will be will be provided during the Zoning Permit process. The water and sewer facilities at the O&M building are generally bathroom facilities, eye wash stations, and interior and exterior hoses, which together utilize minimal amounts of water. The wind turbines themselves will not require water supply or sewage disposal facilities.

d. Location of any river, stream or intermittent stream within 300 feet of proposal.

Please see figure below as well as <u>Exhibit D.</u> Thunderhead will meet all wetland setbacks in the Zoning Regulations and no turbines will be placed in river's, wetlands or streams.



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e. The number and location of parking spaces for customers or the public.

During construction, parking areas will be established for construction workers in order to avoid parking along the edges of county roads or unauthorized areas. These construction parking areas generally will not be intended for the public, although a limited number of visitor parking spaces are expected to be available at a primary construction operations area. After reclamation, a small area around the turbine foundation will be available to O&M staff to park while performing maintenance. The O&M building will also have approximately 7 to 15 dedicated parking spaces for staff and visitors that will be identified during the Zoning Permit process. Customer parking does not apply to a WECS, either during construction or during operations.

#### f. The location of loading areas.

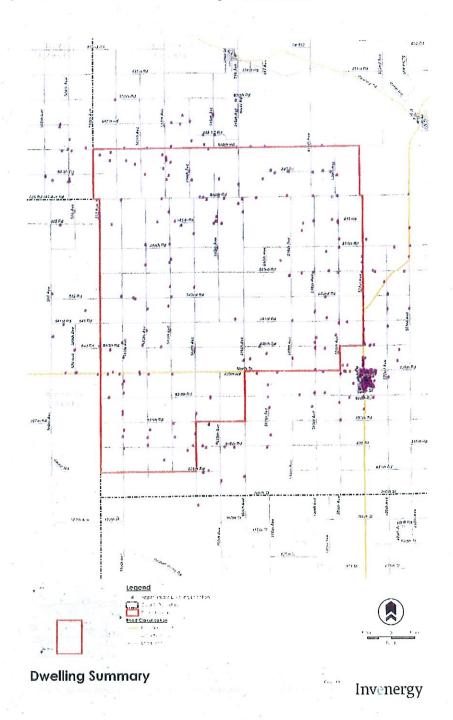
Turbine components will be offloaded adjacent to final foundation locations before they are erected, or potentially at a central staging area within the project area. The O&M building will also have space for equipment delivery and storage during the operations of the project. Specific locations to be determined.

g. The type and location of refuse collection and storage facilities.

Temporary waste disposal units will be deployed during construction as necessary across the site. During operations, waste will be collected at the O&M building. At all times during construction and operations, trash and other refuse will be stored in appropriate containers, with lids when needed outdoors to ensure that trash does not blow around the Project Area.

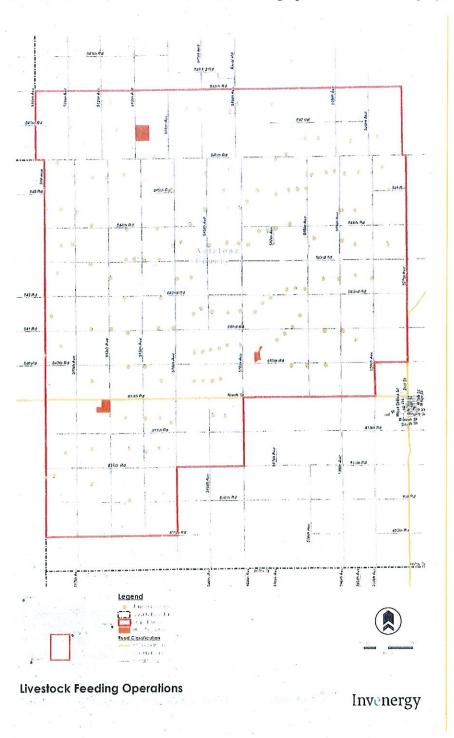
h. The location(s) of residential dwelling(s) and other non-agricultural land uses within two (2) miles of the property to be affected by the proposed conditional use.

Please see figure below indicating general locations of residential dwellings within the project area as well as the setback map in <u>Exhibit C</u>.



*i.* List the location and distance to any existing confined livestock feeding operations within a 2-mile radius.

Please see locations of known livestock feeding operations within the project area.



Location of disposal of dead animals.

In the event there is an animal carcass discovered on the wind farm by O&M personnel the relevant landowner and/or state agency will be notified as appropriate according to a Project Bird and Bat Conservation Plan. There will be no disposal of dead animals associated with operations of the wind farm. Thunderhead encourages landowners to immediately bury or remove any carrion from the project site.

k An indication of proposed surface water drainage onto, through and off of the affected property. Include any areas of the property that are subject to flooding (attach Floodplain map) or considered to be wetland.

Please see a floodplain map of Antelope County and the surrounding area based on Federal Emergency Management Agency (FEMA) database as well as drainages and wetlands on Exhibit D. Thunderhead will employ Best Management Practices ("BMPs") as part of a project specific Stormwater Pollution Prevention Plan ("SWPPP") to control and manage surface water draining during construction. The Project will meet all wetland setbacks in the Zoning Regulations and no turbines will be placed in rivers, wetlands or streams.

1. The type, size, and location of all signs associated with such proposed use.

Per section 8.08.06 #2 of the wind regulations, signs will be placed at each tower, transformer and substation warning of high voltage and identifying turbine numbers. Other signs shall be posted at the entrance to the site access roads with the 911 address and emergency contact information. A welcome sign identifying the name of the Project is expected to be placed at the O&M building.

m. Any other helpful information

The Thunderhead Project represents potential for significant investment into the continued prosperity of Antelope County. At 300 MWs, the project is expected to generate \$1,055,400 annually via Nebraska Nameplate Capacity Tax alone – plus additional property taxes and employment opportunities. These number will change based on final turbine selection and project size, but regardless represents a significant opportunity for Antelope County to continue to see the benefits from wind projects for its residents. Between Prairie Breeze I, II, III, and Upstream, the county is already in line to receive \$1,814,584 annually from an installed 515.8 MW of nameplate capacity.

Besides additional nameplate and property taxes, the Project will continue to create jobs in the area — continuing the trend of local opportunities for residents to return or stay close to home to work. Up to fifteen long term and full-time positions could be created by the Project.

As wind development has continued in Antelope County, the local Zoning Regulations have continued to evolve and be refined. In March of 2018, the County passed its most restrictive regulations to date – incorporating input from residents as well as the wind industry, to create a balanced set of regulations that honors the historical agricultural activities in the county as well as making it possible for viable wind development. Thunderhead will comply with all aspects of the revised zoning regulations.

In addition, detailed environmental and wildlife surveys have been performed across the project area, including avian use surveys, raptor nest surveys, bat acoustic monitoring, Greater Prairie Chicken and Sharp Tailed Grouse Lek surveys, and American Burying Beetle surveys. Wetland, cultural resource, and a Sandhills ecoregion assessment were also performed. Information from all of these site-specific surveys have been considered in siting the preliminary locations of the turbines in order to minimize potential impacts and to avoid sensitive areas.

The Thunderhead Project has also provided new opportunities for residents to participate in a wind project who may not have had an opportunity when previous projects were developed and build. Excitement and participation within the project area have been high, with over 48,000 acres under lease, or nearly 65% percent of the project area. Additional leases are expected to be signed after submittal of this permit application and will be incorporated into the Project in order to provide as much inclusion as possible and to allow for siting flexibility as additional information is continued to be integrated into the Project.

Attached as <u>Exhibit H</u>, please a signed a statement from local county residents specifically showing their support for Thunderhead as well as letters of support from local businesses.

# 3.0 Conditional Use Permit Requirements

#### 3.0 CONDITIONAL USE PERMIT REQUIREMENTS

#### 8.08.03 Requirements for Application

#### 1. The name(s) of project applicant.

Thunderhead Wind Energy LLC c/o Invenergy Wind Development LLC Attn: Josh Framel Senior Manager, Renewable Development

#### 2. The name of the project owner.

Thunderhead Wind Energy LLC c/o Invenergy Wind Development LLC

#### 3. The legal description and address of the project.

Project Address:
Thunderhead Wind Energy LLC
c/o Invenergy Wind Development LLC
Attn: Josh Framel
One South Wacker Dr., Suite 1800
Chicago, IL 60606

The address of the operations and maintenance building will be provided to the Antelope County Zoning Administrator in conjunction with the zoning building permit process, once its location has been determined.

The legal description of property within the Project Area in Antelope County, Nebraska as shown in Exhibit A is included all or partially within the following description:

T24N R8W: ALL
T24N R7W: SECTIONS 2-11, 14-23, 26-35
T25N R7W: SECTIONS 26-35
T25N R8W: SECTIONS 25-36
T23N R8W: SECTIONS 1-22, 27-30
T23N R7W: SECTIONS 2-6

- 4. A description of the project including: number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the feeder lines.
  - The Thunderhead Project will include up to 137 General Electric, or similar tier-1 manufacturer, Wind Turbines. The nameplate generating capacity of each wind turbine will range from 2.3 MWs up to 3.8 MWs and will total no more than 300 MW of capacity in Antelope County.
  - The maximum height of the Wind Turbines will be approximately 152 meters (498ft) when the top rotor blade is directly above and parallel to the tower. The total height may be less depending on the final turbine model selected.
  - The maximum hub height of the Wind Turbines will be 88.6-meters (291 feet) and the maximum rotor diameter will be 130-meters (426 feet). The maximum length of a single blade will be 65.2 meters (214 ft) long. These distances may be less depending on the final turbine model selected.
  - The closest the tip of blade will come to the ground will be 80.5 feet assuming an 80-meter (262.5 ft) hub height and 55.4 meter (182 feet) blade. Any other combination of blade and hub height will result in a higher clearance.
  - The Wind Turbines will be connected through multiple strings of the Project electric collection system at 34.5 kV voltage to the Project collector substation. The collection system will be primarily underground, however the Project may to use overhead collection lines if necessary based on localized site conditions or other engineering factors. The Project collector substation will then step-up the power up to 345kV and a single overhead transmission line will connect the collector substation to the Holt County Substation.

5. Site layout, including the location of property lines, wind turbines, electrical grid, and all related accessory structures. This site layout shall include distances and be drawn to scale.

A preliminary Wind Turbine layout is attached as <u>Exhibit A</u>. On-site surveying, continued land leasing, and geotechnical investigations are either ongoing or planned in the near future, and a detailed site layout (the "Site Plan") will be provided to the Zoning Administrator upon completion of final siting and design as part of the Zoning Permit process. Turbine locations will not vary by more than 900 feet from the coordinates provided in this application – please see recommended Conditions for further discussion. Zoning permits will contain micro-sited locations for each turbine, including distances to the nearest setback items identified in Section 8.08.05 of the zoning regulations.

The exhibit C layout assumes the maximum turbine size in meeting all required setbacks. Regardless of the turbine model selected, all setbacks will met in accordance with the Zoning Regulations before construction. It is possible that a combination of turbine models will be deployed.

Regardless of the turbine model selected, all turbines will be installed with a Winter Ice Operation Mode (WIOM) control algorithm for the Turbine Control Software and thus will meet the requirement for reduced setbacks in Section 8.08.05.

6. Certification by an Engineer competent in disciplines of wind turbines and WECS projects that the electrical, acoustics, and structural systems are compliant with all State and Federal code.

Please see <u>Exhibit F</u> letter of certification for the electrical design of the WECS by Electrical Consultants, Inc. (ECI), professional engineers with experience building utility-scale WECS in compliance with State and Federal codes.

Also included in Exhibit F is a letter from General Electric with regard to compliance of wind turbine generators to the International Eleoctrotechnical Commission ("IEC") 61400-22 standards. IEC 61400-22:2010 defines rules and procedures for a certification system for wind turbines that comprises both type certification and certification of wind turbine projects installed on land or off-shore. This system specifies rules for procedures and management for carrying out conformity evaluation of wind turbines and wind farms, with respect to specific standards and other technical requirements, relating to safety, reliability, performance, testing and interaction with electrical power networks.

Please see Exhibit E for an acoustical analysis performed by Hankard Environmental that shows the project will comply with the County Zoning requirements of Section 8.08.06 #13, however there are no State or Federal code's that are known to apply to wind turbine acoustics.

Thunderhead will further comply with Antelope County Zoning Building Permit and Assessor Building Permit requirements, as well as apply for the relevant exemption from Nebraska Power Review Board.

7. Documentation of land ownership or legal control of the property through the presentation of all deeds, leases (less financial disclosures), affidavit or another instrument indicating a landowner is a willing participant in the project.

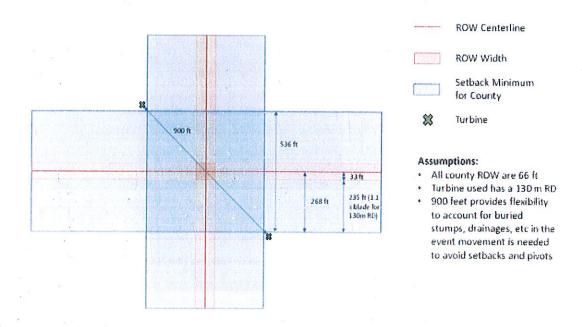
Please see current Landowner list in <u>Exhibit B</u> including deed book and page of the currently recorded memoranda of the Wind Energy Lease and Easement Agreements. Upon request, Thunderhead will provide copies to the Zoning Administrator of the specific memoranda filed with the Antelope County Register of Deeds documenting each Land Lease.

As new land becomes signed, Exhibit B will be updated and incorporated into the project area for additional turbine, road, and siting flexibility as requested in this application. Documentation will accordingly be provided to Antelope County as it is received.

#### 8. The latitude and longitude of individual wind turbines.

A preliminary layout of all Wind Turbine locations is included as <u>Exhibit A</u>, including a spreadsheet of latitude and longitude of individual Wind Turbines. Please note that not all of these locations are intended to be built, and Thunderhead requests flexibility to move locations no further than 900 feet from the originally submitted coordinates. Having this flexibility allows the project to adapt to new siting information as it becomes available. For example: landowner feedback, updates to farming operations, geotechnical surveys, collection line routing, trees, etc. Any movements will still comply with all of the requirements in the zoning regulations including setbacks and sound.

Per the drawing below, 900 feet will specifically allow for a turbine to be relocated from one pivot corner across a county right-of way and into an adjacent pivot corner.



Please see Exhibit C setback map demonstrating compliance with the setback requirements applicable to locations of dwellings, wetlands, and county rights-of-way. As part of the Zoning Permit process Thunderhead will provide the Zoning Administrator with the exact latitude and longitude of the final turbines on Zoning Permit Applications prior to construction.

Further, a final site plan will be submitted before the start of construction in order to demonstrate compliance with the culturing requirement in Section 8.08.04 #5 of the Zoning Regulations.

9. An acoustical analysis of the project including anticipated noise levels for each turbine at nearby inhabited structures.

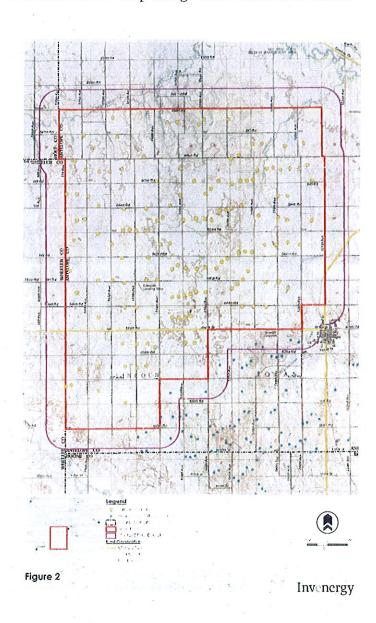
Please see Exhibit E acoustical analysis from Hankard Environmental showing that the project will comply with the noise requirements in section 8.08.06 #13 of the Zoning Regulations. The results are based on an accurate and detailed mathematical model of sound from the Project at all occupied non-participating residences in the area. The Wind Turbines were modeled as having maximum sound in all directions, which is inherently conservative, and terrain and general atmospheric conditions were incorporated. Both a GE 2.5-127 and GE 3.8-130 Wind Turbine were modeled.

Due to the conservative assumptions of the study methods, validation at operating projects have consistently shown noise levels to be approximately one (1) DBa less than what is modeled.

The Project will provide an updated noise report to the Zoning Administrator before the issuance of Zoning Permits demonstrating continued compliance with the Zoning Regulations for the final turbine layout.

10a. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other Wind Energy Conversion System not owned by the applicant, within 10 rotor distances of the proposed Wind Energy Conversion System.

The three phases of the operating Prairie Breeze wind farm are located south and east of the Project Area and represent the closest WECS. Please see Figure 2 below for a map showing Prairie Breeze and a 10-rotor diameter distance (assuming a 130 meter rotor) from the Thunderhead Project Area. There are currently no Thunderhead Wind Turbines that would be within 10 rotor diameters of an operating Prairie Breeze wind turbine.



Below is a general map of the other existing wind projects in the area

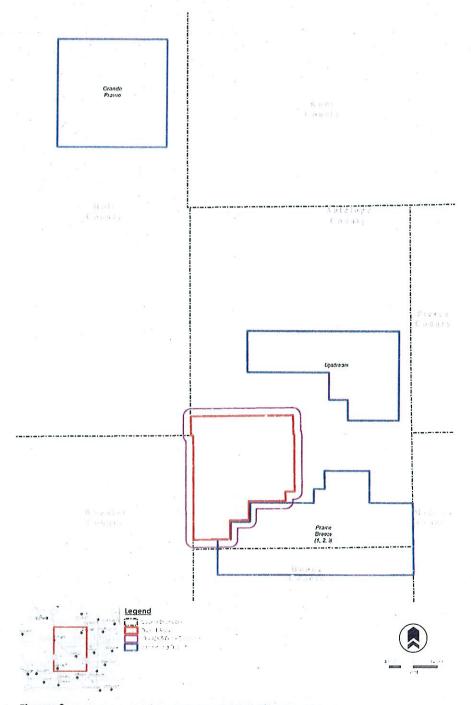


Figure 2

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10b. Location of wetlands, scenic, and natural areas (including bluffs) within 1,320 feet of the proposed Wind Energy Conversion System (see table below).

Thunderhead performed a combination of desktop and field wetland delineation within the project boundary which is shown on Exhibit D. In accordance with Section 8.08.05 of the Zoning Regulations, no Wind Turbines will be located within 600 feet of wetlands, USFWS Types III, IV, or V. In reference to the Conditional Use Permit Application Item K (in Section 2 of this application), no Wind Turbines will be located in a FEMA 100 year floodplain and there are no state or federally designated scenic or natural areas, including bluffs, within 1,320 feet of the Project area.

Further, the closest natural wildlife areas are the Hackberry Creek and Red Wind Wildlife Management Areas which are both outside the project boundary.

Please see Exhibit C for the location of wetlands and demonstration of compliance of setback requirements within the Project Area.

11. FAA and FCC permit: Applicant shall submit permits from the appropriate agency prior to any power being produced.

Prior to erection of any individual Wind Turbine, Thunderhead shall provide the Zoning Administrator with a Determination of No Hazard issued by the Federal Aviation Administration (FAA) for each final turbine location.

When a final layout has been determined, Thunderhead will also submit each turbine location to the National Telecommunications and Information Administration (NTIA). Located within the Department of Commerce, one of the roles of the NTIA is to act as a one-stop clearinghouse for wind developers to reach many interested federal agencies, including the National Oceanic and Atmospheric Administrator Radar Operations Center (ROC). A copy of the response from the NTIA as well as any recommended mitigation steps will be submitted to the Zoning Administrator before erection of individual wind turbines. See Item 12 below for additional information.

During the zoning permit process, the Applicant also will request Certificates of no Zoning Violation from Antelope County Zoning Administrator to submit to the Nebraska Department of Aeronautics for their approval.

12. Location of and evidence that there will be no interference with any commercial and/or public safety communication towers within two miles of the proposed Wind Energy Conversion System.

In order to understand any potential impacts to communication towers, Thunderhead contracted Comsearch to perform an analysis of commercial and/or public communication towers in and around the project area. Please see the attached report as Exhibit G. The report identified exiting microwave and radar beam paths that cross through the project area, as well as searching the Federal Communication Commission's (FCC) database of communication towers. This information was incorporated into the preliminary layout and turbines were set back outside of beam paths to avoid interference, regardless of which direction any wind turbine is facing. Therefore, Thunderhead will not interfere with any existing commercial and/or public safety communication towers.

#### 13. Decommissioning Plan as required by this regulation.

Please see Exhibit I for a decommissioning plan which complies with section 8.08.08(10) of the zoning regulation for 137 GE 2.5-127m turbines in Antelope County. The plan outlays a sequence for removal of WECs components including Wind Turbine towers, hubs blades and nacelle, as well as the project substation and turbine foundations pedestals to four (4) feet below grade. The costs are estimated based on current knowledge and published cost information or construction estimating sources. The estimates will be updated based on final Project design, turbine selection, and current material and labor costs prior to construction.

# 14. Description of potential impacts on nearby Wind Energy Conversion Systems and wind resources on adjacent properties not owned by the applicant.

Thunderhead will continue to evaluate the viability of placing additional Wind Turbines on adjacent and nearby properties within the project area in determining the final layout. In the event additional landowners within the Project Area sign wind leases, then Thunderhead may explore the placement of facilities on their land, as long as no turbines are moved further than 900 feet from the coordinates supplied in this application and all setbacks are met. Wind resource on properties adjacent and near to Wind Turbines could be impacted depending on factors relating to such properties such as elevation, topography, and location relative to Thunderhead. See Section 9 above for information regarding existing WECS facilities.

### 15. Applicants shall be required to establish a separate road repair and maintenance agreement with the County Roads Department and County Board.

Thunderhead agrees to establish a separate road repair and maintenance agreement before start of construction with the County Roads department and the County Supervisors. Attached as Exhibit J please see the form of road use agreement that was finalized for the Upstream Wind Farm, which is currently nearing the end of construction. Particular emphasis will be placed on strict adherence to utilization of only those roads within the use agreement.

#### 16. Additional Information.

#### **Environmental Responsibility**

Thunderhead has conducted numerous environmental studies and has logged thousands of hours of field surveys in the area to ensure the project is sited responsibly with respect to wildlife and other environmental attributes. Thunderhead is committed to responsible development and has incorporated the US Fish and Wildlife Service's Wind Energy Guidelines (WEG: 2012) and the USFWS Eagle Conservation Plan Guidance (ECPG; 2013) into the siting, design and plans for the Project. The Project has been designed to avoid impacts to federally or state listed species. The Project has also engaged with the USFWS and Nebraska Game and Parks Commission dating back to 2016 to better understand local environmental resources and has adopted avoidance and minimization strategies accordingly. The project site was purposely shifted away from American Burying Beetle habitat in order to avoid impacts to the species, which is federally listed as endangered. Extensive environmental studies have been conducted within and around the project area, including:

#### 2016 Wildlife Surveys:

- Raptor/Eagle Nest Survey (April 2016)
- Large and Small Bird Use Surveys (May 2016-May 2018)
- American Burying Beetle Survey (June and August 2016)
- Summer and Fall Bat Acoustic Survey (June-October 2016)

#### 2017 Wildlife Surveys:

- Tier 1 & 2 Site Characterization Report including
  - o Habitat Assessment
  - o Whooping Crane Assessment
  - o Northern Long-eared bat Habitat Assessment
- Greater Prairie Chicken & Sharp Tailed Grouse Lek Survey (March-April 2017, Olsson Associates)
- Spring Bat Acoustic Survey (March-June 2017, Olsson Associates)
- Raptor/Eagle Nest Survey (March-April 2017, Olsson Associates)
- Large and Small Bird Use Surveys (May 2016-May 2018)
- Cultural Resources Survey

#### 2018 Wildlife Surveys

- Sandhills Ecoregion Assessment (2018)
- American Burying Beetle Habitat Assessment (2018)
- Greater Prairie Chicken & Sharp Tailed Grouse Lek Survey (March-April 2018, Olsson Associates)
- Raptor/Eagle Nest Survey (March-April 2018, Olsson Associates)
- Large and Small Bird Use Surveys (May 2016-May 2018)

#### Community Engagement

In conjunction with other development efforts, namely for the Prairie Breeze and Upstream projects, Thunderhead has made efforts to engage and to support the local community. Below is a list of the entities that we have supported via donations or otherwise over the years:

Antelope County Fair Sponsor
Clearwater Rodeo Sponsor
Neligh / O'Neil Educational Foundation Golf Fundraiser
Neligh / O'Neil School Calendar Sponsor
Antelope County Fair Events Sponsor
4 H Results Special Sponsor
Neligh / O'Neil Fall Sports Programs
Neligh Friends of the Library
Neligh / O'Neil Basketball Programs
Neligh / O'Neil School Volleyball & Football Programs Sponsor
Neligh / O'Neil Athletic Booster Club Membership
Neligh Young Men's 4th of July Golf Fundraiser
Neligh Fire Department

#### **Turbine Access Roads**

An access road to reach each Wind Turbine location and a small gravel pad around each Wind Turbine location with enough space to park a pick-up truck will be constructed. Most access roads will spur from existing County Roads and new driveways will be coordinated with the Antelope County Highway Superintendent and Supervisors via County Driveway Permits. Any access from State Highways will be coordinated with Nebraska Department of Roads.

#### Construction and Reclamation

In addition to using experienced engineering firms to design the Project, Invenergy will engage a reputable construction contractor to build the Project and will work with it to obtain all necessary permits typically obtained shortly prior to construction. All turbines will adhere to the special safety and design standards set forth in the Zoning Regulations. During construction there will be an increase in traffic in the area; however, Thunderhead will seek to reduce impacts as much as reasonably practical, including by deploying dust suppression measures. Upon completion of construction, Thunderhead will reclaim temporarily disturbed ground and grade land as close as reasonably practicable to original contours, in coordination with the Landowners.

A typical Wind Turbine and its accessory facilities removes approximately one-third to one-half acre of land from production, with the remainder of the property remaining agricultural in use. This results to minimal permanent disturbance across the project site. The preliminary locations of the Wind Turbines can be found in <u>Exhibit C</u>. Thunderhead will have Land Leases in place with all landowners on whose property the final layout of where the Wind Turbines are located.

The Project as a whole is not expected to have any effect on surface water drainage patterns after completion of construction. To the extent that upon completion of final siting and design drainage patterns may be materially affected, Thunderhead will undertake reasonable efforts to coordinate with the relevant landowners and to manage such changes via Best Management Practices (BMPs). Such BMPs may include but are not limited to sediment trapping, temporary vegetative cover, mulch, erosion blankets, silt fence and preservation of existing vegetation.

#### Special Safety and Design Standards

Thunderhead will adhere to the following requirements from section 8.08.06 of the Zoning Regulations:

- 1. Clearance of rotor blades or airfoils must maintain a minimum of 25 feet of clearance between their lowest point and the ground.
- 2. All Commercial/Utility WECS shall have a sign or signs posted on each tower, transformer and substation warning of high voltage. Other signs shall be posted at the entrance to the site the 911 address and emergency contact information.
- 3. All wind turbines, which are part of a commercial/utility WECS, shall be installed with a tubular monopole type tower.
- 4. Consideration shall be given to painted aviation warnings on all towers less than 200 feet.
- 5. All wind turbines and towers that are part of a commercial/utility WECS shall be white, grey or another non-obtrusive color. Blades may be black in order to facilitate deicing; finishes shall be matte or non-reflective.
- 6. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by the FAA and NDA permits and regulations. Red strobe lights shall be used during nighttime illumination to reduce

impacts on neighboring uses and migratory birds. Red pulsating incandescent lights should be avoided.

- 7. All signage shall comply with the sign regulations found in these regulations
- 8. All communication and feeder lines installed as part of a WECS shall be buried, where feasible. Feeder lines installed as part of a WECS shall not be considered an essential service.
- 9. Solid and Hazardous wastes, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site promptly and disposed of in accordance with all applicable local, state and federal rules and regulations.